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PTO/SB/29 (12/97)

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<div style="display: flex; justify-content: space-between;"><div style="writing-mode: vertical-rl; transform: rotate(180deg);">03/15/00</div><div><b>UTILITY PATENT APPLICATION TRANSMITTAL</b></div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">03/15/00</div></div> <p><small>See MPEP for new nonprovisional applications under 37 CFR 1.53(b)</small></p>		Attorney Docket No.	2511-092	Total Pages	15
		First Named Inventor or Application Identifier			
		Dietmar PRZYTULLA			
		Express Mail Label No.	N/A		
<b>APPLICATION ELEMENTS</b> <small>See MPEP chapter 600 concerning utility patent application contents.</small>		<b>ADDRESS TO:</b> Assistant Commissioner for Patents Box Patent Application Washington, DC 20231			
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COUNSELLORS AT LAW  
1667 K Street, N.W.  
Washington, D.C. 20006  
(202) 496-4400

ATTORNEY DOCKET NO. 2511-092

Date: March 15, 2000

Assistant Commissioner for Patents  
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Sir:

The following utility patent application is enclosed for filing:

Applicant(s): Dietmar PRZYTULLA and Wilhelm Peter  
MEULEMAN

Executed on: (Unexecuted)

Title of Invention: PLASTIC CONTAINER

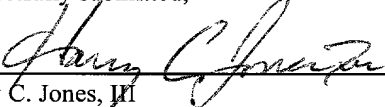
**PATENT APPLICATION FEE VALUE**

TYPE	NO. FILED	LESS	EXTRA	EXTRA RATE	FEE
Total Claims	7	-20	0	\$18.00 each	\$ 0.00
Independent	1	-3	0	\$78.00 each	\$ 0.00
Minimum Fee					\$ 690.00
Multiple Dependency Fee If Applicable (\$260.00)					\$ 0.00
<b>Total</b>					\$ 690.00
50% Reduction for Independent Inventor, Nonprofit Organization or Small Business Concern (a verified statement as to the applicant's status is attached)					- \$ 0.00
<b>Total Filing Fee</b>					\$ 690.00

- ☒ Priority of application no. DE 299 07 189.8 filed on April 22, 1999 in Germany is claimed under 35 U.S.C. § 119.
- ☐ The certified copy of the priority application has been filed in application no. filed
- ☐ Amend the specification by inserting before the first line the following sentence: This is a continuation-in-part of application no. filed.

Please charge the required fee to Pennie & Edmonds LLP Deposit Account No. 16-1150. A copy of this sheet is enclosed.

Respectfully submitted,

  
Harry C. Jones, III  
PENNIE & EDMONDS LLP

20,280  
(Reg. No.)

Enclosure

This form is not for use with continuation, divisional, re-issue, design or plant patent applications.

## Plastic Container

### BACKGROUND OF THE INVENTION

The invention relates to a large-volume container made of thermoplastic material. The container can be designed as a tight-sealed barrel or a barrel with a loose lid with a clamping ring.

Large-volume containers exhibit a capacity (filling volume) of approximately 100 liters or more and are used in their tight-sealed barrel embodiment for storing and transporting liquid contents and in the loose lid embodiment preferably for receiving solid, particle-shaped or pasty contents (e.g. rubble, granulate, powders, pastes, etc.).

### SUMMARY OF THE INVENTION

The object of the present invention is to provide a generic container, in which, through a change in its design, improved use of the floor space on pallets can be achieved, and also through constructive measures a lessening of the tendency to bulge out.

This object is attained according to the invention, in that the shape of the body of the barrel exhibits one of sectional area approaching the shape of a square with slightly embossed side surfaces and rounded corner areas. Through this measure, better use of the floor space on pallets is achieved. The unused volume of space in between stacked barrels according to the invention is considerably reduced in comparison to traditional round barrels and use of

previously unused space volume for freight (e.g. with ISO containers) is increased.

In the design of the invention it is provided that the body of the barrel is equipped with vertically and/or horizontally running stiffening elements, the denting of the flattened side walls is considerably reduced.

The stiffening elements can be designed as open U-shaped or V-shaped rib-like forms that run toward the inside and/or to the outside.

Advantageously, the horizontally running stiffening elements can be designed as molded and thickened mold hoops, for a stable design of the barrel body. Advantageously, the mold hoops are molded during the blow molding of the barrel body through a stamping-out process from the walls of the barrel body. So that the mold hoops exhibit approximately the same exterior diameter as the remaining barrel wall, they can be arranged in an approximately V-shaped mold that rounds around toward and is open toward the outside.

The plastic barrel according to the invention is further distinguished by the following features and advantages:

In an embodiment as a tightly sealed barrel, a central bung piece is located, if necessary, in a die-sunk bung mold, on the upper barrel floor, so that it is protected. In another embodiment, two lateral bung pieces are located in appropriately die-sunk bung

house on the upper barrel floor. On the upper circumference of the barrel body, an L-ring is designed as a handling ring. The stiffening elements are U-shaped or V-shaped rib-like molded parts that are open toward the inside and/or toward the outside. The horizontally running stiffening elements are designed as thickened mold hoops molded from the walls of the barrel. The mold hoops are molded from the wall of the barrel body by a stamping-out process during the blow molding of the barrel body. The mold hoops that have been stamped can be arranged in such a way that they run around the circumference in a somewhat V-shaped form, open toward the outside. When only one stiffening ring running around the circumference is provided, then it is located in an area of the barrel body from the middle to the lower third of the barrel body, preferably measured at a height of approximately 43% from the floor of the barrel.

Thus the following advantages are achieved: The stiffness and resistance to denting of the flattened areas of the walls of the barrel and the ease of loading the containers in stacks is overall enhanced.

#### BRIEF DESCRIPTION OF THE DESCRIPTION

The invention is further explained and described below in the drawings of the embodiments that are presented. The following is shown:

Fig. 1 is a top view of a container according to the invention;

Fig. 2 is a side view of another container according to the invention, with a partial sectional view in the upper and lower area;

Fig. 3 is a sectional view through the barrel body of a container according to the invention with a circular comparison; and

Fig. 4 is a side view of another container according to the invention with a partial section view in the upper and lower area.

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#### DETAILED DESCRIPTION OF THE INVENTION

Reference number 10 shows a large-volume blow molded bung barrel made of thermoplastic material in Fig. 1 with a capacity of 250 liters, which is equipped on the upper wall of the container with L-ring 12 that runs around the circumference as a handling hoop. In the top of the barrel are located two side bungs 14 in die-sunk bung molds 16. In this top view, the square-shaped design becomes clear, namely that the barrel bottom exhibits a sectional surface that approximates the shape of a square with side surfaces that are slightly embossed and rounded corner areas.

15

Fig. 2 shows an embodiment with a bung 14 centrally located in a bung mold 16. In the left half the picture, the bung barrel 10 is equipped with a foot hoop 18 that runs around the circumference (a hoop that allows it be rolled over the floor), while in the right half of the picture, another embodiment without a foot hoop is shown.

20

Fig. 3 shows a cross-section through the wall of a barrel body according to the invention, which can be designed as a barrel with a loose lid. In comparison to that, a circle with the same circumferential length is superimposed over it. This circle is intended to show

the usual bulging-out tendency of a barrel filled with content. Thus the barrel has a tendency to bulge out on the flat areas of the wall and to pull inward in the areas of the corners, and thereby to assume a circular shape as the shape with the least tension. To work against this disadvantageous tendency, the barrel body, as shown at the left side in Fig. 4, is equipped with a mold hoop 22 that runs around its circumference. This mold hoop 22 is measured at a height of about 43% from the floor, is inserted in molded piece 20 in such a way that the circumference of the mold hoop and the rest of the barrel body are approximately the same. The mold hoop can stick out slightly, so that barrels standing next to one another touch one another with their mold hoop. The right side of Fig. 4 shows a molded piece as a stiffening element. Here the molded piece is open toward to outside of the barrel body.

## Claims

1.) Container (10) made of thermoplastic material, characterized in that  
the barrel body exhibits a cross-section surface that approaches the shape of a square  
5 with slightly embossed side surfaces and rounded corner areas.

2.) Container according to claim 1, characterized in that  
the barrel body is equipped with one or more stiffening elements that run vertically  
and/or horizontally.

3.) Container according to claim 1, characterized in that  
the stiffening elements are designed as U-shaped or V-shaped molded pieces that are  
open toward the inside and/or toward the outside of the barrel body.

15 4.) Container according to claim 1, characterized in that  
the horizontally running stiffening elements are designed as thickened mold hoops  
molded out of the wall of the barrel.

5.) Container according to claim 4, characterized in that  
20 the mold hoops are formed out of the wall of the barrel body by a stamping-out  
process during the blow molding of the barrel body.



6.) Container according to claim 5, characterized in that

the mold hoops that have been stamped out are arranged in a somewhat V-shaped molded piece that runs around the circumference and is open toward the outside.

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7.) Container according to one of the foregoing claim 4, characterized in that

only one mold hoop running around the circumference is provided, and is located in an area of the barrel body, measured from the middle to the lower third of the barrel body, at a height of approximately 43% from the floor of the barrel.

## ABSTRACT

A barrel body with a cross-section surface that approaches the shape of a square with slightly embossed side surfaces and rounded corner areas. The barrel body can be equipped with stiffening elements that run vertically and/or horizontally.

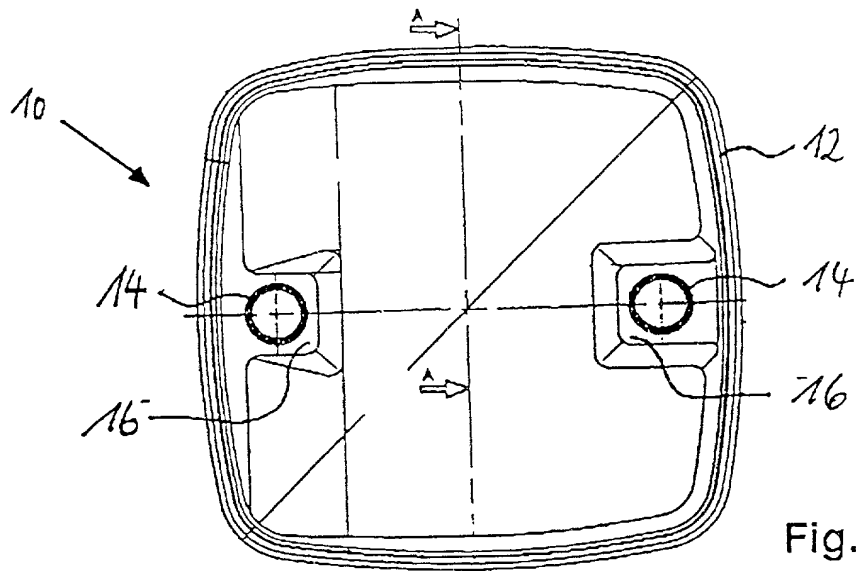


Fig. 1

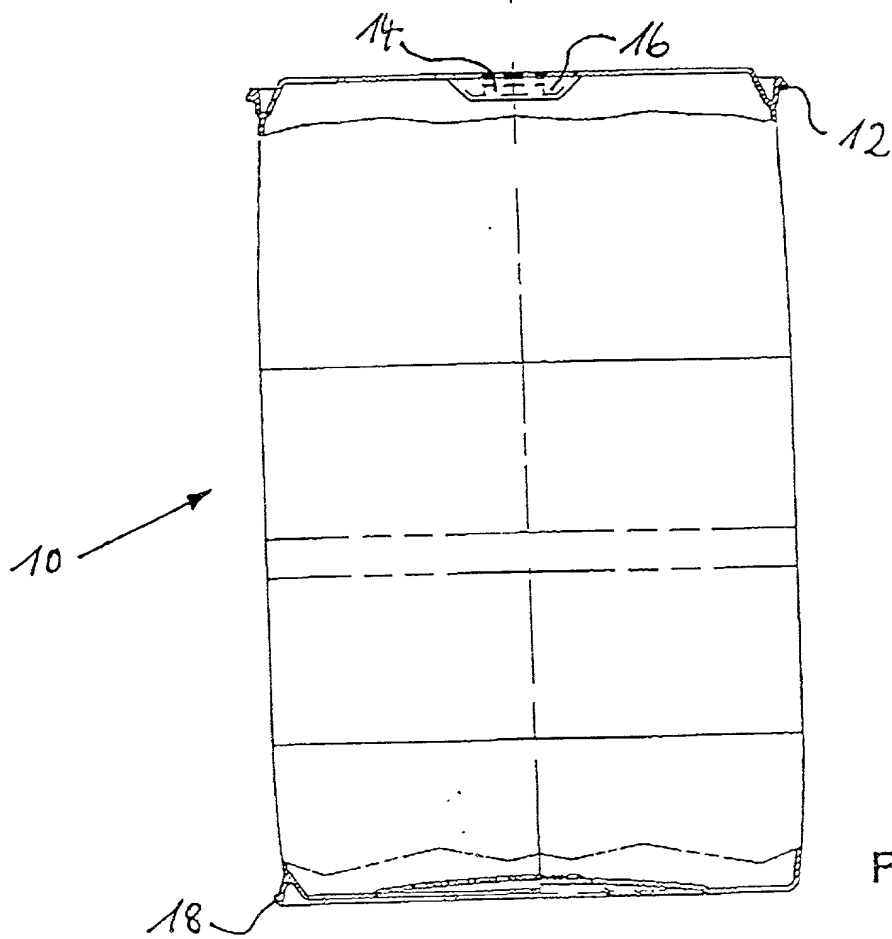


Fig. 2

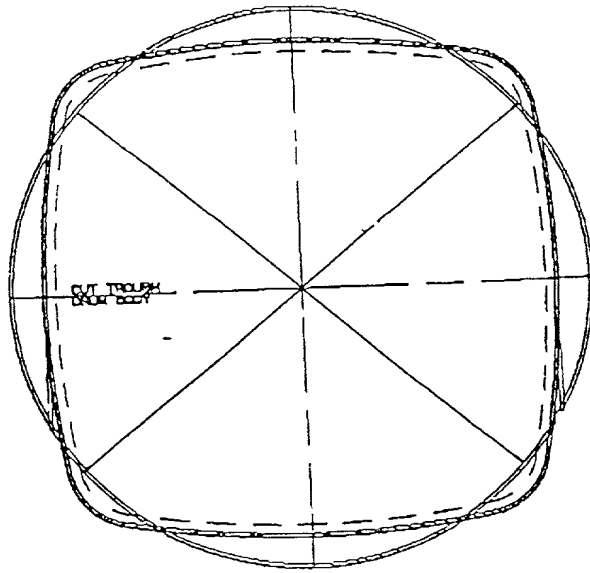


Fig. 3

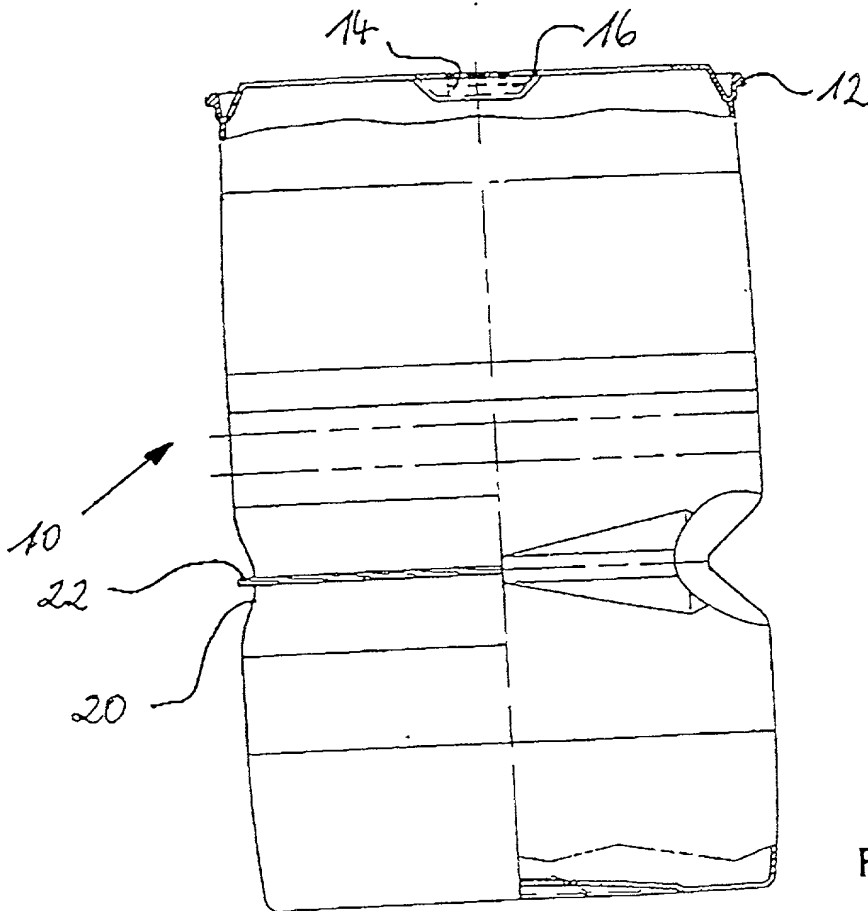


Fig. 4

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PLASTIC CONTAINER

and for which a patent application

- ☒ is attached hereto and includes amendment(s) filed on (if applicable)  
☐ was filed in the United States on as Application No. (for declaration not accompanying application)  
with amendment(s) filed on (if applicable)  
☐ was filed as PCT international Application No. on and was amended under PCT Article 19 on (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment referred to above

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EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED PRIOR TO THE FILING DATE OF THE APPLICATION			
APPLICATION NUMBER	COUNTRY	DATE OF FILING (day, month, year)	PRIORITY CLAIMED
DE 299 07 189.8	Germany	22 April 1999	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
			YES <input type="checkbox"/> NO <input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below

APPLICATION NUMBER	FILING DATE

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION SERIAL NO.	FILING DATE	STATUS		
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1667 K Street, N.W.  
Washington, D.C. 20006

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201	FULL NAME OF INVENTOR	LAST NAME PRZYTULLA	FIRST NAME Dietmar	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY Kerpen	STATE OR FOREIGN COUNTRY Germany	COUNTRY OF CITIZENSHIP Germany	
	POST OFFICE ADDRESS	STREET Gustav-Heinemann-Str 64	CITY Kerpen	STATE OR COUNTRY Germany	ZIP CODE 50317
202	FULL NAME OF INVENTOR	LAST NAME MEULEMAN	FIRST NAME Wilhelm	MIDDLE NAME Peter	
	RESIDENCE & CITIZENSHIP	CITY Oosterhout	STATE OR FOREIGN COUNTRY Netherlands	COUNTRY OF CITIZENSHIP Netherlands	
	POST OFFICE ADDRESS	STREET Zuiderkruis 7	CITY Oosterhout	STATE OR COUNTRY Netherlands	ZIP CODE 4907 VE
203	FULL NAME OF INVENTOR	LAST NAME	FIRST NAME	MIDDLE NAME	
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
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